

## Claims

1. A device for contrast enhancement for display devices, comprising  
5  
at least one focussing optical means (1) which preferably comprises at least one lens (1) and/or at least one mirror arrangement (14, 16),  
at least one diaphragm (2) with at least one aperture (6), and  
10  
at least one means (3) for deflecting and/or absorbing light, wherein the at least one lens (1) is arranged such that it focuses incident light (5) and directs it through the at least one aperture (6) to the at least one means (3) for deflecting and/or absorbing light.
- 15 2. A device for contrast enhancement for display devices, comprising  
at least one light-scattering means, which preferably comprises at least one divergent lens (12) and/or at least one mirror arrangement (18), and  
20  
at least one means (3) for deflecting and/or absorbing light, wherein the at least one lens (1) is arranged such that it directs incident light (5) to the at least one means (3) for deflecting and/or absorbing light.
- 25 3. The device according to claim 1 or 2, wherein the means (3) for deflecting and/or absorbing light comprises an area (7) being arranged, relative to the incident light (5), behind the diaphragm (2).
4. The device according to any one of claims 1 to 3, wherein the means (3) for deflecting and/or absorbing light comprises a cavity (8) extending behind the diaphragm (2).  
30
5. The device according to claim 4, wherein the cavity (8) is cylindrical, conical, spherical and/or square.

6. The device according to any one of the preceding claims, wherein at least the area (7) and/or the inner walls of the cavity (8) and/or the means (3) for deflecting and/or absorbing light has/have reflecting or absorbing properties.
- 5
7. The device according to any one of the preceding claims, wherein at least the wall and/or the inner walls of the cavity (8) and/or the means (3) for deflecting and/or absorbing light is/are dark and/or black.
- 10
8. The device according to any one of the preceding claims, wherein at least the area (7) and/or the inner walls of the cavity (8) and/or the means (3) for deflecting and/or absorbing light is/are at least partially coated and/or roughened.
- 15
9. The device according to any one of the preceding claims, wherein at least the area (7) and/or the inner walls of the cavity (8) and/or the means (3) for deflecting and/or absorbing light is/are at least partially coated with graphite and/or with roughened graphite.
- 20
10. The device according to claim 1 or according to any one of claims 3 to 9, wherein the device comprises several diaphragms (2) arranged adjacent to each other.
11. The device according to claim 10, wherein the diaphragms (2) and/or the apertures (6) have different sizes.
- 25
12. The device according to claim 1 or according to any one of claims 3 to 11, wherein the size of the aperture(s) (6) is adjustable.
13. The device according to any one of the preceding claims, comprising several lenses (1), wherein the lenses are square, rectangular, round and/or oval.
- 30
14. The device according to claim 13, wherein the lenses (1) abut on each other.

15. The device according to claim 1 or according to any one of claims 3 to 14, wherein the lens(es) (1) is/are elongate and wherein the diaphragm(s) (2) is/are (a) slit diaphragm(s).
- 5 16. The device according to any one of the preceding claims, wherein the lenses (1) are arranged cubically, cylindrically and/or as a segment of a circle.
17. The device according to claim 1 or according to any one of claims 3 to 16, wherein the distance between lens (1) and diaphragm (2) is adjustable.
- 10 18. The device according to any one of the preceding claims, wherein the device further comprises at least one active and/or passive light source (4).
19. The device according to claim 18, wherein at least one light source (4) is arranged  
15 between the lens (1) and the diaphragm (2) and/or between the lens (1) and the means (3).
20. The device according to claim 18 or 19, wherein the lens (1) is used for focussing the emitted light (9).
- 20 21. The device according to any one of claims 18 to 20, wherein at least one light source (4) is arranged beside the lens (1).
22. The device according to claims 18 to 21, wherein at least one light source (4) is  
25 arranged in front of, within and/or behind the lens (1).
23. The device according to any one of claims 18 to 22, wherein at least one light source (4) comprises further optical means.
- 30 24. The device according to any one of claims 18 to 23, wherein the active light source(s) (4) is/are configured as laser, incandescent lamp, LED, EL foil, neon tube and/or an organic LED.

25. The device according to any one of claims 18 to 24, wherein the passive light source(s) (4) is/are activated by the incident light (5).
- 5 26. The device according to claim 25, wherein the light source (4) is a reflective layer.
27. The device according to claim 25, wherein the light source (4) is a liquid crystal display.
- 10 28. The device according to any one of claims 18 to 27, wherein the light (9) of the light source(s) (4) is directed via optical waveguides to a preferred place.
29. The device according to any one of claims 18 to 28, wherein several light sources (4) of different colours are used.
- 15 30. The device according to claim 29, wherein three light sources (4) are arranged per lens, each of which exhibiting one of the three primary colours.
31. The device according to any one of claims 18 to 30, wherein the light source(s) (4) is/are (a) lens(es) (1) itself/themselves.
- 20 32. The device according to claim 31, wherein the light source(s) (4) and/or lens(es) (1) directs/direct the incident light (5) through the aperture (6) and emits/emit its/their own light (9).
- 25 33. The device according to any one of claims 18 to 32, wherein the light efficiency of the light source (4) is adjustable.
34. The device according to any one of the preceding claims, wherein the device comprises at least one mirror and/or at least one mirror section.
- 30

35. The device according to claim 34, wherein the mirror and/or the mirror section is/are at least partially curved.
- 5 36. The device according to any one of the preceding claims wherein all optical and/or translucent elements are provided with an antireflective coating.
37. The device according to any one of the preceding claims, wherein the non-optical elements are dark and/or black and/or roughened.
- 10 38. The device according to claim 37, wherein the elements are coated with graphite and/or roughened graphite.
39. The device according to any one of the preceding claims, wherein the device comprises at least one shield (10), which is arranged adjacent to at least one lens (1) and protects the device against light incidence from unfavourable angles of incidence.
- 15 40. The device according to any one of the preceding claims, wherein the diaphragm (2) is a liquid crystal display.
- 20 41. The device according to any one of the preceding claims, wherein the light source (4) is an area or sheet-like and has an opening in the size of the diaphragm aperture or larger.
- 25 42. The device according to any one of the preceding claims, wherein the light source (4) is preferably an OLED or comprises a fluorescent material.
- 30 43. The device according to any one of the preceding claims, wherein the angle of incidence of the extraneous light (5) is determined with the aid of sensors and the position of the diaphragm (2), the size of the aperture (6) and/or their position is/are adjustable accordingly.

44. The device according to any one of the preceding claims, wherein the cavity (8), the area between the lens (1) and the diaphragm (2) and/or the area behind the diaphragm (2) comprise(s) a preferably translucent material and/or fluid.
- 5 45. A method for contrast enhancement for display devices comprising at least one device according to any one of the preceding claims.
46. A method for contrast enhancement for display devices comprising the following steps:
- 10 focussing and/or scattering the incident light (5) preferably by means of at least one lens (1) and/or at least one divergent lens (12) and/or at least one mirror arrangement (1), and
- 15 creating a dark background by absorbing and/or deflecting the incident light.
47. The method according to claim 45 or 46, wherein light is further emitted from the dark background and/or from the environment of the dark background by means of at least one active and/or passive light source (4).
- 20 48. The method according to any one of claims 45 to 47, wherein the light is directed through a diaphragm (2) into a means for deflecting and/or absorbing light (3), where it is deflected and/or absorbed.
- 25 49. The method according to any one of claims 45 to 48, wherein the angle of incidence of the extraneous light (5) is determined with the aid of sensors and the size of the aperture (6) and/or its position is/are adjusted accordingly.